

Goal 1: Science-informed society

An informed society that has access to, interest in, and understanding of NOAA-related sciences and their implications for current and future events.

Objective	Evidence of Progress	FY16 Progress	Contents
<p>1.1 Youth and adults from all backgrounds improve their understanding of NOAA-related sciences by participating in education and outreach opportunities.</p>	<p>1.1a Developed more education and outreach opportunities for youth and adults from all backgrounds.</p>	<p>NOAA reached audiences from diverse backgrounds (highlights on page 7, featured story on page 11).</p>	<p>Highlights: Students from all backgrounds engage in education opportunities.</p> <p>Story: Fourth Grade students engage with NOAA through Every Kid in a Park Initiative</p>
<p>1.2 Formal and informal educators integrate NOAA-related sciences into their curricula, practices, and programs.</p>	<p>1.2a Increased integration of NOAA resources and topics by educators into their curricula, practices and programs.</p>	<p>NOAA improved capacity to report on the outcome of educator professional development (highlights on page 8) and updated online educational resources (highlights on page 9).</p>	<p>Highlights: NOAA makes online collections more educator friendly.</p> <p>Highlights: Educators take what they learn about NOAA back to students of all ages.</p>
<p>1.3 Formal and informal education organizations integrate NOAA-related science content and collaborate with NOAA scientists on the development of exhibits, media materials, and programs that support NOAA's mission.</p>	<p>1.3a Expanded partnerships that lead to deeper integration of NOAA resources into the development of exhibits, media, materials, and programs.</p>	<p>NOAA worked with partners to integrate Earth science resources into their education programs and products (highlights on page 10, featured story on page 12).</p>	<p>Highlights: Partners help NOAA meet its education mission</p> <p>Story: Partners raise youth voices at COP21 through the Climate Education and Literacy Initiative</p>

Goal 2: Conservation and Stewardship

Individuals and communities are actively involved in stewardship behaviors and decisions that conserve, restore, and protect natural and cultural resources related to NOAA's mission.

Objective	Evidence of Progress	FY16 Progress	Contents
<p>2.1 Youth and adults from all backgrounds are knowledgeable about conservation and stewardship practices and skilled in applying them to address local, regional, national, and global issues related to NOAA's mission.</p>	<p>2.1a Increased participation of youth and adults from all backgrounds in education programs that promote conservation and stewardship.</p>	<p>NOAA promoted awareness by organizing outreach events and encouraged stewardship actions (highlights on page 14, stories on pages 17 and 18).</p>	<p>Highlights: Raising awareness, taking action on conservation and stewardship.</p> <p>Story: B-WET students in Mississippi convince their community to permit permeable paving systems to protect their watershed</p> <p>Story: The Sapelo National Estuarine Research Reserve expands the Seeds to Shoreline student program to Georgia</p>
<p>2.2 Formal and informal educators integrate NOAA-related sciences into their curricula, practices, and programs.</p>	<p>2.2a Increased integration of NOAA-related conservation and stewardship information by educators into their curricula, practices, and programs.</p>	<p>Programs measured whether educators integrated stewardship projects as a result of participating in professional development programs (highlight on page 15, featured story on page 19).</p>	<p>Highlights: Programs help educators integrate stewardship actions into classrooms</p> <p>Story: Climate Stewards bring stewardship projects into classrooms</p>
<p>2.3 Formal and informal education organizations integrate NOAA-related science content and collaborate with NOAA scientists on the development of exhibits, media materials, and programs that support NOAA's mission.</p>	<p>2.3a Expanded partnerships that lead to increased participation of youth and adults in conservation and stewardship activities.</p>	<p>NOAA updated funding opportunities to encourage stewardship action and diversify audiences (highlights on page 16).</p>	<p>Highlights: Shaping funding opportunities to encourage stewardship actions.</p>

Goal 3: Safety and Preparedness

Individuals and communities are informed and actively involved in decisions and actions that improve preparedness, response, and resilience to challenges and impacts of hazardous weather, changes in climate, and other environmental threats monitored by NOAA.

Objective	Evidence of Progress	FY16 Progress	Contents
<p>3.1 Youth and adults from all backgrounds are aware of, prepare for, and appropriately respond to environmental hazards that impact health, safety, and the economy in their communities.</p>	<p>3.1a Increased awareness of environmental hazards, their impacts, and preparedness actions by youth and adults from all backgrounds.</p>	<p>NOAA provided creative outreach to improve public awareness of environmental hazards (highlights on page 21, featured stories on pages 23 and 25).</p>	<p>Highlights: Reducing risk through education and outreach</p> <p>Story: University of Southern California engages Citizen Scientists to track urban tides</p> <p>Story: Hurricane Awareness Tour reaches new audiences</p>
<p>3.2 Formal and informal educators use and produce education materials and programs that integrate and promote consistent science-based messaging on hazards, impacts, and societal challenges related to water, weather, and climate.</p>	<p>3.2a Increased integration of safety and preparedness information by educators in their formal and informal education and professional development programs.</p>	<p>NOAA completed work in this area through strong partner relationships. Please see Objective 3.3.</p>	
<p>3.3 Formal and informal education institutions integrate water, weather, and climate hazard awareness, preparedness, and response information into curricula, exhibits, and programs that create learning opportunities for youth and adults.</p>	<p>3.3a Expanded partnerships that lead to increased integration of safety and preparedness information into curricula, exhibits, and programs.</p>	<p>NOAA refined and leveraged relationships with partners to promote resilience and hazard awareness (highlights on pages 21–22, featured story on page 24).</p>	<p>Highlights: Partners help NOAA build a nation resilient to environmental hazards</p> <p>Story: Environmental Literacy Grantee, Science Museum of Virginia, offers free “PreparAthon” to help build resilience through education</p>

Goal 4:Future Workforce

A diverse and highly skilled future workforce pursues careers in disciplines that support NOAA's mission.

Objective	Evidence of Progress	FY16 Progress	Contents
<p>4.1 Students, particularly from underrepresented groups, consider education and career pathways in disciplines that support NOAA's mission.</p>	<p>4.1a Increased integration of college and career information into education programs</p>	<p>NOAA provided career awareness opportunities for underserved groups, such as low income families, inner-city students, disabled youth, and minority groups (highlights on page 27, featured stories on pages 31 and 32).</p>	<p>Highlights: Expanding career options for students</p> <p>Story: Latino high school students receive training for green careers</p> <p>Story: Finding NEMO in Washington, D.C.: NOAA and Partners Work Together to Inspire the Next Generation of Ocean Scientists in the Nation's Capital</p>
<p>4.2 NOAA and partner institutions leverage federally funded assets to provide students, particularly those from underrepresented groups, with experiential learning, research, and scholarship opportunities.</p>	<p>4.2a Increased the number of students, particularly from underrepresented groups who participate in experiential learning, research, and scholarship opportunities.</p>	<p>Scholarship programs established relationships with Minority Serving Institutions to recruit applicants who have not traditionally applied (highlights on page 28).</p>	<p>Highlights: Targeted communication to recruit diverse audiences.</p>
<p>4.3 Postsecondary students, particularly those from underrepresented groups, pursue and complete degrees in disciplines critical to NOAA's mission.</p>	<p>4.3a Increased the proportion of trained students from underrepresented groups pursuing careers in disciplines critical to NOAA's mission</p>	<p>Critical education-to-workforce positions were created or expanded to strengthen the link between NOAA student opportunities and workforce entry (highlights on page 29, featured story on page 33).</p>	<p>Highlights: What's next? How NOAA is helping students start their careers</p> <p>Story: The National Weather Service leveraged the Pathways Internship Program to expand NOAA's workforce</p>
<p>4.4 Graduates completing NOAA-supported students opportunities continue education, enter the workforce, and advance in careers that support NOAA's mission.</p>	<p>4.4a Improved understanding of the trajectories of NOAA-supported students along their education and career pathways.</p>	<p>NOAA improved data collection to capture the trajectories of NOAA-supported students and the NOAA workforce (highlights on page 30, featured story on page 34).</p>	<p>Highlights: Using data to effectively understand the NOAA workforce pipeline.</p> <p>Story: Four Educational Partnership Program alumni selected as Knauss Marine Policy Fellows</p>

Goal 5: Organizational Excellence

NOAA functions in a unified manner to support, plan, and deliver effective educational programs and partnerships that advance NOAA's mission.

Objective	Evidence of Progress	FY16 Progress	Contents
5.1 Leaders internal and external to NOAA recognize and support education investments as a way to achieve agency mandates, mission, and goals.	5.1a Increased recognition by leaders of the importance of education in achieving NOAA's mission.	NOAA's education staff and programs received awards for achievement (highlights on page 36).	Highlight: NOAA Education recognized for advancing NOAA's mission
5.2 The NOAA Education community develops implementation plans and establishes agency education priorities informed by stakeholder needs and national initiatives.	5.2a Implemented systematic approaches for collecting data about constituent needs to inform NOAA's education priorities.	NOAA programs refined their education priorities by creating individual strategic plans (highlights on page 36).	Highlights: Strategically planning for success
5.3 NOAA educators and partners collaborate at local, regional, and national levels to coordinate efforts, build capacity, and better service educational audiences.	5.3a Expanded opportunities for communication and learning within the NOAA education community.	Programs built productive and sustainable networks by connecting individuals and resources within the NOAA education community (highlights on page 37, featured stories on pages 39 and 40).	Highlights: Working together Story: Teacher at Sea alumni find creative ways to keep bringing the sea home to students Story: NOAA collaborates with White House and partners to advance citizen science and crowdsourcing
5.4 NOAA and partner organization use effective evaluation, performance monitoring, and evidence-based approaches in the design and management of educational programs, products, and services.	5.4a Improved the practice of evaluation by educators to inform the improvement and management of NOAA Education programs.	NOAA improved education efforts by collecting information on program activities and outcomes and assessing educator needs (highlights on page 38).	Improving programs through evaluation
5.5 NOAA develops and supports a coordinated portfolio of products, programs, and partnerships that improves education opportunities in NOAA-related content areas for underserved audiences.	5.5a Developed a coordinated portfolio of products, programs and partnerships that target underserved audiences.	NOAA cataloged and supported programs that target underserved audiences (highlights on page 38).	Understanding the portfolio of NOAA programs for underserved groups

Index	Progress Statement
1	<p>The Climate Program Office (CPO) and a network of partners made progress in FY16 toward Goal 1 by engaging youth worldwide around the historic Paris global climate talks and beyond as part of the White House’s Climate Literacy and Education Initiative. In December 2014, the White House Office of Science and Technology Policy (OSTP) launched the Climate Education and Literacy Initiative (CELI) to connect students and citizens with the best-available, science-based information about climate change. CELI emphasizes the importance of forming collaborations to help lift our Nation’s game in climate education and include all generations and sectors in tackling climate change. As part of the CELI launch, Federal agencies and external organizations in the United States – committed to work to enhance youth engagement on climate change. NOAA, along with partners came together to form the #Youth4Climate – Road to COP21 campaign. Through this campaign, the hashtag #Youth4Climate was used to coordinate events, activities, and related educational efforts – many of which fulfill CELI commitments – up to and during the climate negotiations at the 21st Conference of Parties (COP21) in Paris December 2015. This initiative reached 31 million social media impressions during the conference making it the largest youth focused social media presence at COP21. NOAA educators and partners collaborated across the nation to coordinate the #Youth4Climate efforts to better serve youth and educators worldwide. (Objective 5.3)</p>
2	<p>For the past seven years, NOAA Fisheries has been celebrating the annual return of endangered North Atlantic right whales during the Right Whale Festival in Jacksonville Beach, FL. The endangered whales, with about 465 in the population, return to the warm coastal water off northeast Florida and Georgia, where they give birth to and nurse their young. NOAA Fisheries has worked toward Goal 2 with this family-fun event that raises awareness of the threats to right whales and how we can help in their recovery, highlighting local efforts to protect the whales from extinction, as well as ocean-themed activities and exhibits that emphasize education and environmentally responsible adventures and products. Over 5,000 people attended the 2015 festival, with large crowds and good weather expected for the 8th Annual Right Whale Festival on October 1, 2016. The long-term impact of this event works toward increasing conservation and stewardship awareness of right whales among youth and adults from all backgrounds.</p>
3	<p>NOAA’s presence at the 2016 USA Science and Engineering Festival (total attendance 365,000) centered around the travelling exhibit of Science On a Sphere. We trained 23 presenters from across NOAA line offices who offered 75 presentations over the course of the three-day event. This cadre includes 7 new presenters and joins over 30 presenters who have already been trained. These presentations allowed our scientists and communicators to showcase NOAA science and discoveries to the visitors the event. In addition to reaching tens of thousands of visitors at this event, our presenters are now available to support future events at the Science On a Sphere in Silver Spring.</p>
4	<p>The students of a small community in Mississippi learned about watersheds and land use and landscape types and patterns. In this, they learned about permeable paving systems. They presented their findings and info about the benefits of such paving to the City Council and suggested that the Council adjust zoning rules to allow for this type of pavement. At the City Council meeting on August 2, the zoning amendment to allow permeable paving systems in commercial parking areas in Diamondhead, Mississippi - that was proposed as part of the Rotten Bayou Watershed and B-WET projects - passed.</p>
5	<p>In 2016, the Environmental Literacy Grants offered a competitive funding opportunity for projects designed to help communities build the environmental literacy necessary for resilience to extreme weather events and other environmental hazards. In addition, we further emphasized strengthening connections between community resilience initiatives and education efforts. For example, we included new language in the solicitation that encouraged proposed projects to (1) leverage and incorporate relevant state and local hazard mitigation and/or adaptation plans and (2) collaborate with institutions</p>

	that are involved in their development and/or implementation. Funded projects should help communities build the environmental literacy necessary for resilience while complementing existing initiatives. In 2016, each application that we considered for funding met this standard while, in 2015, less than half of the applications that we considered for funding did.
6	NOAA is an active member of the Federal Community of Practice for Crowdsourcing and Citizen Science. From working with the White House Office of Science and Technology Policy, to launching it's own Citizen Science Community of Practice, NOAA has been at the forefront of advancing Citizen Science within the federal government. In FY16, NOAA assisted with the creation of a government-wide website, www.citizenscience.gov . This website was designed to accelerate the use of crowdsourcing and citizen science across government agencies and will aid in developing, implementing, and improving citizen science and crowdsourcing projects across the country.
7	In FY16, the NOAA Climate Stewards Education Project held 11 webinars for formal and informal educators across the United States. 96% of participants reported having learned and 94% intending to use what they learned, and an estimated 39,105 students are likely to be reached. Reducing the time it takes to deliver recordings to the archives was identified in an FY16 needs assessment as way to better serve educators who cannot attend the live broadcast. As of July 2016, they have been viewed over 1,575 times.
8	The Sea Grant program made progress in FY16 toward Goal 5 by re-energizing the Sea Grant Educators' Network (SGEN). Data on what Sea Grant educators expect from and will contribute to the network were collected, bimonthly webinars were started as an incentive to convene regularly, and baseline data on active participation in SGEN activities have been collected. 2016 saw a 35% increase in the number of Sea Grant educators attending the SGEN meeting at the National Marine Educators Association (NMEA) conference (19 attendees in 2016, compared to 14 in 2015). Two educators were able to attend the SGEN meeting and the NMEA conference for the first time. Communicating more regularly as a network will enable Sea Grant educators to leverage resources, coordinate efforts, build capacity, and better serve educational audiences at local, regional, and national levels.
9	The Diversity and Professional Working Group (DPAWG) made progress towards Goal 4 by developing and disseminating a NOAA-wide survey which gathered perspectives about diversity, inclusion, and opportunities for professional advancement. DPAWG identified disparities between the minority and majority NOAA workforce perceptions on job satisfaction, mentorship, career advancement and diversity. DPAWG briefed the NOAA Executive Council and obtained individual commitments from NOAA Leadership to increase efforts to promote inclusion and embrace diversity among employees. DPAWG also assisted with the development of NOAA's Diversity and Inclusion policy and collaborated with the Leadership Competencies Development Program to develop a Diversity and Inclusion Toolkit that will be used to train up and coming NOAA leaders. Understanding the perspective and challenges of underrepresented groups in NOAA's workforce will aid in developing recruitment, retention, and advancement strategies to promote diversity and inclusion.
10	For millennia, coastal indigenous people have relied on the ocean for sustenance and cultural connections. Their need to understand and adapt to changing ocean and coastal conditions is essential. Through their first NOAA Pacific Northwest B-WET grant, the Suquamish Tribe provided an environmental and cultural program, called Ecosystem Pen Pals. In this program, 190 indigenous high school students participated in a series of year-long meaningful watershed educational experiences and exchange activities focusing on the global issues of climate change and ocean acidification. In Washington state, 80 students participated representing four tribes and one Indian Nation. All students live near National Marine Sanctuaries, from the western coast of Washington state, the Hawaiian Islands, and American Samoa, another new community B-WET was able to reach through this type of cultural exchange.
11	In FY16, the BWET program made progress towards Goal 2 by referencing a new MWEE definition in 5 of 6 regional Federal funding opportunities. 61% of

	<p>applications had a well-described or well-integrated stewardship action component as part of their proposal. The new definition puts greater emphasis on stewardship action projects, therefore more formal and informal education organizations will consider stewardship in their project design, and funded projects will increase participation of teachers and students in stewardship activities.</p>
12	<p>Collecting and analyzing student data is critical to better understanding the impact of student opportunities on the educational and career trajectories of NOAA-supported students. In 2015, post graduation information for the Education Partnership Program with Minority Serving Institutions (EPP) and the Hollings Scholarship program was determined to be either missing or, in many cases, out of date. In FY16, EPP and Hollings program staff mined LinkedIn and other sources to fill in the missing data, as well as promoted the Voluntary Alumni Update System. As a result of this effort, OEd has post-graduate records for 72% of OEd higher education program graduates overall (80% of Hollings recipients, 75% of Undergraduate Scholarship recipients, and 66% of Collaborative Science Center graduates). In addition, EPP is developing a prototype for a new user-friendly database that will allow for efficient input and export of these critical data. Data such as these help determine the extent to which graduates completing NOAA-supported student opportunities continue education, enter the workforce, and advance in careers that support NOAA's mission.</p>
13	<p>In FY16, the NOAA-Exploratorium partnership made progress towards Goal 1 by establishing a protocol document for coordinating ship docking and educational programming at the science center. By improving the coordination around each arrival, the Exploratorium will develop the capacity to integrate the science that is conducted aboard NOAA vessels into their exhibits, media, outreach materials and educational programs that reach their nearly 1M visitors per year</p>
14	<p>In its third year, Northwest Fisheries Science Center scientists in the NOAA Outreach and Education on Protected Species (NOEPS) program gave classroom presentations about key marine mammals and research to 10 schools in the New England area. The program reached 1,790 students in 95 classrooms from preschool to high school in the 2015-16 school year. In order to achieve a significant impact in nearby small communities, given limited staffing and budget, the program targeted all K-4th grade classrooms in the Falmouth Public School District and all K-3 classes in the Mashpee School District. In addition, NOEPS makes all lessons and core educational materials available for download by teachers.</p>
15	<p>The Cooperative Remote Sensing and Technology Collaborative Science Center (CREST) partnered with National Environmental Satellite, Data, and Information Service (NESDIS) to provide internships to graduate students to become familiar with the Joint Polar Satellite System (JPSS) program and research-to-operations process in The Center for Satellite Applications and Research (STAR). This program has two phases: phase one, which lasts 4 weeks, matches students with NESDIS JPSS/STAR scientists to be trained in skills specifically for research-to-operations such as programming languages, geophysical products, data assimilation and configuration control. Phase two allows students apply the skills learned in phase one to research projects directed by their STAR mentor. The goal of this program is to provide students with in-depth, real world training at the beginning of their career path to develop critical research and technical skills needed to be competitive in the workforce. In FY16, this was a pilot project which hosted 4 graduate students from CREST. The program aims to expand this opportunity for FY17 to include students from other institutions.</p>
16	<p>The Hurricane Awareness Tour is a NOAA-United States Air Force collaborative outreach event that NOAA has conducted for 30 years. The tour provides an opportunity for the public to meet scientists and see specialized hurricane hunter planes designed to fly at high altitude around and ahead of a tropical cyclone, gathering critical data that feeds into hurricane forecast models. Several tour stops drew tens of thousands of new residents in five locations around the Gulf of Mexico that have not experienced a landfalling hurricane in recent years. Longtime residents also turned out in record numbers.</p>
17	<p>The Hollings Scholarship program made progress towards Goal 4 by recruiting more students underrepresented in NOAA mission fields through the use</p>

	<p>of targeted outreach. Hollings implemented new recruitment tactics including an informational webinar to provide best practices for the application to potential applicants from Minority Serving Institutions (MSI). The NOAA Office of Education outreach staff also visited the campuses of 13 institutions, including six Historically Black Colleges and Universities and four Hispanic Serving Institutions. Campuses were selected based on an analysis of institutions graduating underrepresented students in majors related to NOAA's mission. Of the 12 applicants from targeted institutions, three were awarded the Hollings Scholarship and three were awarded the comparable Educational Partnership Program with Minority Serving Institutions Undergraduate Scholarship. Although not formally targeted, we received applications from 14 additional MSI institutions that have not yet had a Hollings Scholar. Through targeted outreach, Hollings aims to recruit a more diverse pool of applicants and encourage more students from underrepresented groups to pursue degrees in disciplines critical to NOAA's mission.</p>
18	<p>The Climate Program Office made progress in FY16 toward Goal 1 by curating the Climate Literacy Energy and Network (CLEAN) annotated collection of digital climate educational resources for pedagogical effectiveness, quality of scientific content, and relevance to 6-16 science education. In particular, the FY16 efforts were focused on aligning how the collection support new "three dimensional learning" science standards. This annual curation process supports formal and informal educators by providing access to rigorously reviewed, free digital materials in one place so they may more easily explore and integrate NOAA-related sciences into their curricula, practices, and programs.</p>
19	<p>The Climate Program Office (CPO) made progress in FY16 toward Goal 1 by addressing an evaluation finding that awareness, access, and ease of use of the Climate Literacy Energy and Network (CLEAN) annotated collection of digital climate educational resources could be improved. To make the 600+ individual resources within the CLEAN collection more accessible to teachers, CPO launched the first version of a teacher's guide with new three-dimensional learning sequences of CLEAN Collection resources and other trusted science and data content sites. CPO established a contract to raise the profile and use of the annually curated CLEAN collection with the teacher's guide to state science supervisors and school administrators. NOAA, along with partners, also led #Teach4Climate social media campaign to promote the collection. Promoting a teacher-friendly product to educational leaders across the nation will increase the likelihood that formal education organizations will integrate NOAA-related science content in their programs.</p>
20	<p>The Internal Professional Development Working Group (IPDWG) developed a suite of six informational webinars which provide an overview NOAA's educational enterprise. Based on feedback received from the NOAA Education community through a needs assessment and individual correspondence, IPDWG found NOAA personnel are often unaware of the wide range of work and available resources in other sections of the agency. To address this gap for NOAA Education, IPDWG collaborated with key personnel from each education program to develop a webinar series which covers topics such as grants, student scholarships, and a variety of educational opportunities and resources offered through NOAA. The goal of this series is to serve as an orientation for NOAA educators to help ensure staff are aware of education and outreach programs and resources available throughout our agency.</p>
21	<p>The Green Careers Institute works primarily with Latino teens from low-income families in the Pájaro Valley to receive training in environmental careers. Twelve teens participated in a four-week paid intensive summer job training program. They shadowed and assisted professionals in the day to day operations of a wide range of green careers: water quality management, marine and wetland conservation, sustainable agriculture, and restoration ecology. The region faces many challenges, including high local poverty rates, and low academic achievement. As a result, many local high school graduates would be entering low-paying service sector or farm worker jobs. However, the local green job market is growing and will need more workers. The goal of the newly created Green Careers Institute is for teens to be exposed to a wide range of green careers, to become stewards of the environment, to understand the impact of climate change and other environmental challenges facing the community, to learn skills in green careers, and to develop networks with local green career professionals.</p>
22	<p>Montgomery County Public Schools (the largest school division in Maryland) is a Chesapeake Bay Watershed Education and Training (B-WET) grantee.</p>

	<p>The grant funds were used to develop an 11-lesson curriculum for 4th grade, and all 4th grade teachers have been trained to implement these lessons over the past 3 summers. This curriculum is called "Our Neighborhood, Our Watershed (ONOW)". This year, the Central Office of MCPS is codifying ONOW, making these lessons required for quarter 2 of the school year. This will result in 12,000 students annually taking part in these lessons.</p>
23	<p>The Dr. Nancy Foster Scholarship Program made progress towards Goal 4 by targeting minority serving institutions to encourage more non-traditional applicants. For FY16, there were 118 applicants from 101 institutions with at least one applicant from 16 new institutions. Of the new institutions, four were the top producers of bachelors, masters, and doctoral degrees in the marine science and fisheries disciplines for Black and Hispanic students. Direct contact with faculty members has shown to be one of the best methods for students to receive information about scholarship and fellowship opportunities. By targeting minority serving institutions through direct messaging, this scholarship program aims to diversify the applicant pool and provide students, especially those from underrepresented groups, with experiential learning, research and scholarship opportunities.</p>
24	<p>A network of 19 sites at schools, universities and informal education institutions came together for two National Climate Game Jams in FY16. The White House Climate Literacy initiative provided a new avenue for students to engage with NOAA content and staff in climate topics. Over 500 students, from grades 5 to 12 and college, worked with climate experts to design games that encourage stewardship action by players. Teams were selected to invited showcases sponsored by the Smithsonian National Museum of Natural History. The jams offered students and adults opportunities to interact with climate and game experts to learn about the impacts of climate change and resilience. The game jams provided a new approach for using game technology as an instructional strategy in the classroom. This innovative strategy engages students, educators, scientists, game designers, and interested public members in the design of new games and learning strategies and to connect the American public with the best available science information about climate change, inspiring them to become better planet stewards. http://climategamejam.org/</p>
25	<p>In FY16 the Office of National Marine Sanctuaries launched a new distance learning webinar series designed for formal and informal educators to enhance their ocean and climate literacy by connecting with national marine sanctuaries. The National Marine Sanctuaries Webinar Series shares scientific information about a topic followed by relevant educational resources that educators can use with students. To date 250 educators have been participated in five webinars with more than half of them indicating through evaluations they plan to use the resources in the upcoming year.</p>
26	<p>In FY16, six national marine sanctuaries brought over 2,000 extra 4th graders to federal waters as part of the Every Kid in a Park White House initiative. The initiative aims to get every 4th grade student in the United States into federal lands and waters during the 2015-2016 school year. Funding programs allowed the sanctuary and estuary programs to offer additional programming for 4th grade students to visit and experience these special places. While sanctuaries are always free to visit the program included partner grant funded programs for underrepresented students to cover transportation and other field trip costs.</p>
27	<p>NOAA Fisheries made progress toward Goal 5 by reenergizing the network of Fisheries educators through the Fisheries Education Council. Tangible results of consistent, monthly engagement include a common process to share best practices through a cloud-based platform. These best practices documents were shared or updated at least 6-8 times in FY16, indicating active use. The Council also allowed NOAA Fisheries to coordinate across regions to present the best available educational resources through the web. A strengthened forum for collaboration is a prerequisite for coordinating efforts and building capacity at local, regional, and national levels to better serve educational audiences.</p>
28	<p>In FY16, NOAA Fisheries' West Coast Regional Office worked towards Goals 2 and 4 as part of a pilot program to expose students from underserved communities to scientists and different career pathways, including oceanography, marine biology, and science journalism. Students from Rainier Beach High School in Seattle, Washington participated in a research cruise to learn how to drive a remotely operated vehicle (ROV), nicknamed "Yelloweye,"</p>

	<p>along the bottom of Puget Sound, under the guidance of Washington Department of Fish and Wildlife and NOAA Fisheries scientists, learning about ROV research, threatened and endangered rockfish species of Puget Sound, and the impact of urbanization on Puget Sound. By introducing students to scientists and hands-on research, NOAA Fisheries is encouraging students to consider careers in marine science as well as learn about conservation and stewardship of their local environment, with the long-term goal that programs such as this will help diversify and strengthen the talent pool of the next generation of scientists.</p>
29	<p>NOAA Fisheries worked toward Goals 1 and 4 through the NOAA Enrichment in Marine Sciences and Oceanography (NEMO) Program, its long-term program to increase ocean literacy and introduce careers in marine and fisheries science to Washington, D.C. inner-city middle school students. Now in its ninth year, the NEMO program works with many local partners to provide students with field trips and hands-on activities in a typical school year that expose students to world-class NOAA scientists, hands-on activities that range from biology to engineering, and allow them to learn about the health of local water bodies like the Potomac River. In FY16, 23% of participating students were on a boat for the first time, and 38% conducted their first study in biology and physiology through dissection. Through these experiences, as well as a secondary curriculum that received over 5000 page views, middle school youth from underserved communities were educated in conservation and stewardship practices and exposed to education and career pathways in NOAA-related fields.</p>
30	<p>In FY16, NOAA Fisheries' Alaska Fisheries Science Center (AFSC) partnered with several community organizations work toward Goal 4 by bringing marine education to underserved audiences in Alaska. AFSC's Auke Bay Laboratories (ABL) worked with the Southeast Alaska Independent Living/Outdoor Recreation Community Access (SAIL/ORCA) and REACH programs, which both work to provide opportunities for disabled youth, to provide tours of ABL laboratories and participation in the NOAA Sun to Sea summer camp for middle schoolers. In addition, ABL partnered with the University of Alaska Fairbanks Dillingham Campus and the Sealaska Heritage Institute to bring Alaska Native students from rural areas to Juneau to learn about ABL's marine science research. ABL scientists also worked with the Gills Club at the Alaska Sea Life Center in Seward, AK, to connect 18 girls with female shark researchers. AFSC partnered with the Aleut Community of St. Paul Tribal Government to participate in Bering Sea Days, a weeklong program on St. Paul Island, AK, integrating scientists and students in hands-on educational activities, as well as sponsoring two St. Paul students to come to Seattle, WA, to attend NOAA Science Camp. These partnerships have fostered presentations to over 150 students from underserved communities in Alaska during FY16, exposing them to education and career pathways in NOAA Fisheries-related disciplines.</p>
31	<p>NOAA Fisheries made progress in FY16 toward Goals 1 and 4 by highlighting current fisheries topics and marine science careers in the third annual NOAA Fisheries Science Camp, which targeted 35 incoming 8th graders from low income communities. The five-day camp consisted of six science modules, a field trip to visit the Waikīki Aquarium and conduct a beach cleanup, and culminated with an activity that challenged the students to use the information and skills learned at camp to solve a mystery scenario. In FY16, seven camp science modules were developed into kit lessons aligned with Hawaii Department of Education standards, which will allow the materials to reach many more students in the classroom during the coming years, increasing the number of students from underrepresented groups who will consider education and career pathways in NOAA-related disciplines.</p>
32	<p>NOAA Fisheries' West Coast Regional Office made progress toward Goal 2 in FY16 by coordinating nearly 100 volunteers from the greater Seattle area to paint a 6-by-12-foot mural in the shape of a salmon to celebrate World Fish Migration Day in May at Seattle's Hiram Chittenden Locks (which receives more than one million visitors annually). Volunteers from the Seattle Art Academy, The Girl Scouts of Western Washington, YMCA Earth Service Corps, Seattle EcoWomen, Salmon Bay School, and Ballard High School painted the mural while learning about the impacts of human actions on local watersheds, as well as conservation and sustainability issues affecting migrating fish. By conducting community-based art events such as this one in Seattle, NOAA Fisheries and partners hope to encourage reflection, conversation, and learning around environmental issues, greatly increasing the</p>

	interest and knowledge among youth and adults about conservation and stewardship of salmon and other migratory fish species in their local waters.
33	NOAA's Office of Education worked closely with members of the Coastal Ecosystem Learning Center (CELC) Network to develop a stronger sense of community and to reimagine the role of the network. Together, NOAA and the Learning Centers developed a new strategic plan that emphasizes the unique nature of the CELC Network: that its members work together to engage the public in protecting coastal and marine ecosystems. Recognizing that each member institution already undertakes education and engagement activities, the network instead chose to focus on how to magnify individual aquarium's efforts for a greater impact. The network has identified two priorities for the upcoming year - youth engagement and community resilience - and is currently developing activities for both of these topics. The network also agreed to use a coordinated approach to social media and to participate in existing, ocean-related activities and events, such as World Oceans Day and International Coastal Cleanup Day. As a result, the CELC Network is once again an active partner in NOAA's efforts to advance ocean literacy.
34	In FY16, NOS made progress towards Goal 1 by making improvements to their website. The website architecture was redesigned so that content is usable on multiple platforms and mobile technology. The website layout was reorganized by topic to make content easier to find. By making the website easier to access and use, formal and informal educators will be able to find resources that they can integrate into their work.
35	In FY16, the National Weather Service (NWS) made progress toward Goal 3 by conducting the first stage of a product inventory of education materials. Surveying field offices about their publications and outreach needs is the first step toward developing a resource guide for weather education. The resource guide will promote consistent messaging and make resources available for NWS field offices and partners, helping educators integrate science-based messaging on weather hazards into their offerings.
36	The National Weather Service (NWS) made progress toward Goal 5 by writing an education strategic plan. Through the strategic plan, the NWS established a common vision and goals for NWS education, which encompasses a large and disparate network of weather professionals across the country. The plan lays the groundwork for the NWS to improve collaboration, build capacity, and ultimately better serve educational audiences.
38	In FY16, the National Weather Service (NWS) made progress toward Goal 3 by expanding their social media presence and by gathering information on best practices. NWS intends to equip field offices with the tools to get meteorologists and weather education in classrooms.
39	In FY16, Cordell Bank National Marine Sanctuary made progress towards Goal 3 by hosting a live monthly radio program called Ocean Currents. The program highlights ocean experts and focuses on conservation issues, exploration, science findings, adventurers and more. In 2016 the program helped listeners learn more about such topics as harmful algal blooms, whale entanglements, discharge regulations, abalone restoration, safe wildlife viewing, plastics in seafood, and the effects of El Nino to the region. The radio station is a community source of information to the rural area providing both local and global news including daily weather, weather hazards and emergency response, in addition to news and music. Ocean Currents, which has been on the air for 10 years, serves as a hub for communicating vital information and is a source for safety awareness and preparedness to the region.
40	In FY16, the Ocean Guardian School program made progress towards Goal 2 by promoting to the target urban areas of San Francisco, Alameda/Oakland, San Jose, Salinas and Watsonville. Fifteen schools from these areas applied and ten were funded. By encouraging and funding OGS projects at schools that serve predominantly underserved and underrepresented students, a more diverse population of youth will be more knowledgeable about stewardship practices and apply them to environmental issues they face.
41	In FY16, the Office for Coastal Management (OCM) made progress toward Goal 3 by creating a conceptual map of resilience education, drawing connections between activities in the National Estuarine Research Reserve System and actions that make coastal communities more resilient. OCM interviewed education coordinators in the National Estuarine Research Reserves to gather information about their education programs, connecting them

	<p>to elements of the OCM Resilience Roadmap. By documenting the educational activities that are taking place, OCM can now articulate how supports coastal resilience, informing a knowledge gap in OCM and in the broader educational community. As a result, educational activities can be supported and improved, and ultimately more youth and adults will aware of how to prepare for and respond to hazards.</p>
42	<p>The Office of National Marine Sanctuaries (ONMS) developed resources and professional development opportunities to improve climate change education and communication. ONMS has developed two webinars (220 participants), one in-person workshop (75 participants), and one curriculum package for formal and informal educators on the topics of deep sea coral and ocean acidification. In addition, twenty site educators have been trained to effectively communicate climate change messages to the public, bringing the total number trained educators to thirty-one (78%). By ensuring ONMS Educators are trained to properly incorporate climate change messaging into the curriculum, youth and adults will improve their understanding of NOAA-related sciences when participating in education and outreach opportunities (objective 1.1). In addition, ONMS education team members are currently working to update critical climate talking points and key messages to ensure that staff across the system has tools to effectively and consistently communicate on climate change.</p>
43	<p>In FY16, the Products and Programs Development and Delivery (P2-D2) Working Group made progress toward Goal 1 by developing a special online collection of NOAA education resources. Working group members interviewed state and district science supervisors to determine critical needs. The P2-D2 Working Group reviewed and selected a number of products that highlight key areas that NOAA is uniquely positioned to support and would assist the implementation of the National Research Council's new vision for science education. The special collection will help NOAA educators and partners collaborate with school districts and state departments of education to integrate NOAA-related science content into their curriculum and professional development</p>
44	<p>NOAA Fisheries made progress in FY16 toward Goals 1 and 2 by inventorying their educational materials on endangered species and starting the curation process for the web. Nine out of eleven offices have reported and 117 products were identified so far. Understanding the current inventory of materials will allow Fisheries educators to assess them for up-to-date conservation and stewardship information, determine any gaps, and organize them for intuitive access through the web. An updated and organized collection of materials on a central website will facilitate youth and adults from all backgrounds to access and become knowledgeable about conservation and stewardship practices as well as NOAA-managed resources.</p>
45	<p>The NOAA Fisheries Quantitative Ecology and Socioeconomics Training (QUEST) Program is a unique partnership between several academic institutions and NOAA Fisheries that works toward Goal 4 by helping to train the next generation of scientists to enter mission career fields in stock assessment, ecosystem assessment, and marine resource economics. QUEST faculty receive funding from NOAA Fisheries, conduct research in quantitative fisheries disciplines that form the basis of the career fields describe above, and primarily have education and training as a focus (i.e. instructional faculty as opposed to research faculty). Currently, 10 QUEST faculty are advising 12 Master's students and 36 PhD students around the country. They also have 7 post-doctoral students and 14 undergraduate students conducting research in their labs. Of previous students of QUEST faculty who graduated in 2015, two are currently working for NOAA Fisheries, one is in academia, three are working for state government agencies, and one is working for a non-profit organization, indicating that graduates completing this program are continuing their education and entering the workforce in careers that support NOAA Fisheries' mission.</p>
46	<p>In FY16, the NOAA Climate Stewards Education Project (CSEP) provided 7 regional workshops to 484 educators. 99% of participants reported have learned and an estimated 43,540 students are likely to be reached. These workshops provide opportunities to educators receive free professional development from local scientists in climate change, its impacts on their local region, and how to engage their students on these topics in the classroom. The workshop partners included Aquarium of the Pacific in Long Beach, California; the Detroit Zoo in Detroit, Michigan; the Hogle Zoo in Salt</p>

	Lake City, Utah; UCAR/NCAR in Boulder, Colorado; Aquarium of the Americas in New Orleans, Louisiana; and South Carolina Sea Grant in Charleston, South Carolina. These workshops also afforded partnering organizations to expand their network of educators, and allowed them the means to access and organize experts on climate change for a purpose inherent in their missions.
47	NOAA Fisheries' Southeast Regional Office made progress in FY16 toward Goal 2 by developing an outreach program to address illegal human interactions with bottlenose dolphins that strand feed on the shores of Kiawah Island, South Carolina. "Strand feeding" is a unique hunting behavior in which the dolphins work together in small groups to herd fish towards the shallow water and shore, so they can easily grab them. Reports of individuals trying to illegally interact with or feed dolphins that come to shore to strand feed have increased in previous years. Educators monitored the beaches during times when strand feeding was most likely to occur and informed over 800 beach-goers about how to protect these dolphins, as well as working with the community to spread the word to residents and tourists, increasing awareness of conservation and stewardship practices among the general public.
48	In FY16, the Ocean Exploration and Research program made progress towards Goal 1 by redesigning their Okeanos workshops into a single 7-hour professional development workshop. The new series, titled Deep Ocean Discoveries, will be offered at 11 Alliance Partner sites this fall. With a single series there are more opportunities to reach more people, therefore more educators will integrate deep-sea science exploration into their classrooms, curricula, and programs.
49	The Local/Regional Collaboration Working Group set out to support the establishment and maintenance of regional NOAA educator networks. Four pilot networks identified priority education issues unique to their regions to address over the next two years. The working group coordinators tracked and shared best practices across regions.
50	This is the first year Teachers on the Estuary is formally included in the operations grants of all Reserves. 23 of the 28 delivered at least one workshop this summer. This teacher training program provides content and pedagogical training to teachers in the areas of estuary science and climate change. Teachers and students engage in scientific investigations and stewardship.
51	The National Environmental Satellite, Data, and Information Service and the National Estuarine Research Reserves revised two modules, Sea Level and Water Quality, to align better meet the Next Generation Science Standards (NGSS) requirements. The other two have been mapped to demonstrate how the activities support NGSS.
53	The EPA Seeds to Shoreline program focuses on hands-on educational approach to saltmarsh stewardship and the understanding of the scientific method. Middle school and high school students were permitted to harvest Spartina seeds in the salt marsh, germinate them in their schools, grow them out in greenhouses and plant the Spartina in designated areas. A total of 226 students were engaged through this program and 69 plants were planted back into the estuary. All teachers who participated in this program rated it as very helpful in introducing science principles into the classroom and allowing students to stratify experimental treatments in a real-world scenario.
55	In FY16, the National Weather Service in partnership with Raytheon developed Weather-Ready Nation Safety Modules. The eight online modules are designed to teach youth, age 13 and above, how to prepare for, survive and recover from weather emergencies. They focus on the highest-priority actions to take before, during and after bad weather, and are tailored to each U.S. state. They are free and available for anyone who might face severe weather. They are operational on UCAR servers, and they were fine-tuned by the Georgia Science Teachers Association and preparedness experts at FEMA.
56	One Cool Earth used Bay Watershed Education and Training (B-WET) funds to engage over 650 students from low income schools in the Central Valley of California to restore the watershed by reducing their water use. Working with community conservation partners, they installed low water native plant and

	vegetable garden on school grounds, provided home water conservation kits to all students, and installed rain barrels throughout the school campuses. These improvements were made as a part of the B-WET grant to One Cool Earth, which they used to catalyze additional funds of \$2M from the state.
57	The Multicultural Education for Resources Issues Threatening Oceans (MERITO) Foundation used Bay Watershed Education and Training (B-WET) B-WET grant funds to empower students to address climate change and ocean acidification. The Energy Efficiency to Mitigate Climate Change and Ocean Acidification program is a project-based science education program that provides energy, climate and ocean literacy services and products to teachers and their students. They worked with predominantly Hispanic and Latino students to provide them with the tools to research, design and innovate Energy Efficiency or other sustainability models their schools can adopt, or develop Ocean Acidification (OA) awareness campaigns that inform their communities. A secondary goal is to inspire STEM underrepresented students to pursue careers related to the environment.
58	The Education Council Underserved Audiences Working Group made progress toward Goal 5 by conducting an inventory of education programs that specifically target underserved groups. This information will not only help articulate and understand how education support's NOAA goals of diversity, inclusion, and reaching audiences from diverse backgrounds, but also how these programs can be better supported in NOAA. Through this work, NOAA can better coordinate a portfolio or products, programs, and partnerships that improves education opportunities in NOAA-related content areas for underserved audiences.
59	NOAA Fisheries' Southeast Regional Office has worked toward new communication methods for Goal 2 in FY16: the use of aerial banners to relay important educational messages to target audiences at large events, and a permanent marine mammal conservation display at Fort De Soto Park, FL. Aerial banners have proven to be an effective outreach tool, educating beach-goers and recreational vessel users (for example, jet ski riders, surfers, and paddleboarders) about laws protecting wild bottlenose dolphins and North Atlantic right whales. Banners have been flown during peak times over crowds as large as 300,000 people and in specific areas when these marine mammals are present. The permanent marine mammal display will educate Fort De Soto Park visitors (more than 2.7 million annually) about illegal feeding and harassment of dolphins and other marine mammals. By using tools like aerial banners and permanent displays at parks, NOAA Fisheries can greatly increase the interest and knowledge among youth and adults about conservation and stewardship of right whales and wild dolphins.
60	In FY16, the Teacher at Sea (TAS) Program made progress towards Goal 5 through numerous alumni presentations, workshops, conferences, field trips, and outreach events. 34 TAS participant and alumni events occurred across the nation. 62 alumni volunteered and presented at local, regional and national events. Alumni collaborated with 30 NOAA scientists during outreach events, field trips, workshops, conferences, and classroom visits. Thousands of students and members of communities were positively impacted by the collaborative work completed by TAS alumni, NOAA educators, and NOAA scientists. This demonstrates that TAS participants and alumni are collaborating by region with various NOAA educators for support and NSTA presentations.
61	Sue Zupko, NOAA Teacher at Sea alumna, led the second annual Seven Seas Celebration on April 15, 2016 at Weatherly Heights Elementary School in Huntsville, Alabama. Over 200 students and parents attended the marine science and math activity night. Participants made nautical flags, weighed and measured fish that they created, followed Ms. Zupko's drifter buoy that was launched during her 2014 research cruise, and played ocean themed games. NOAA Corps Lieutenant Jonathan Heesch participated and taught students about the importance of ship safety. This activity demonstrates how an alumna continues to use her at-sea experience to reach her community long after the research cruise.
62	In FY16, the Office of National Marine Sanctuaries made progress on Goal 2 by expanding their on-the-water volunteer naturalist program called Team OCEAN to Hawai'i. The new program in Hawai'i trained 9 volunteers to become sanctuary on-water kayak docents and naturalist interpreters. These

	<p>naturalist volunteers will provide informal education to the ocean paddle sport public along coastal areas of Maui that fall within the Hawaiian Islands Humpback Whale National Marine Sanctuary. Outreach will formally begin with the 2016-2017 humpback whale breeding season in Hawai'i. Place-based, on-water education activities will include discussing marine wildlife natural histories and viewing etiquette, landscapes, local heritage and culture with resident and visiting ocean users, cultural canoe clubs and naturalist-led water sport touring groups. By learning how to share these stories, these initial sanctuary volunteers have become unique ocean stewards while at the same time they are being taught to train additional volunteers and the public to become active in conservation and stewardship activities that protect our sensitive habitat and wildlife.</p>
63	<p>In FY16, the Teachers on the Estuary (TOTE) program made progress towards Goal 5 by implementing a system for collecting information about workshops delivered. Right now there is no data to be able to tell a single TOTE story. With a database, this information will be collected for the first time. Seeking support for sustained investments, the program needs to provide evidence how it assists the agency in meeting its mandates, mission and goals.</p>
64	<p>In FY16, the Teacher at Sea (TAS) Program made progress towards Goal 5 by adding Pre- and Post-Season Survey questions to track the use of NOAA resources by TAS participants and alumni. 100% of teachers who submitted a Post-Cruise Survey intend to integrate their experience at sea into their work within the next year. Teachers plan to use real-time data from NOAA buoys, develop NOAA career lessons, and build units about hydrography and remotely operated vehicles. With an improved understanding of what NOAA resources are of interest to teachers and how they plan to use them, the program can identify ways to support Teachers at Sea to better integrate their ship-based research experience into their curricula and teaching practice. This exemplifies integrating evaluation to improve the management of educational programs.</p>
65	<p>On June 25th 2016, the NOAA Marine Debris Program and NOAA Ocean Today's TRASH TALK Special Feature received a Regional Emmy® Award from the National Capital Chesapeake Bay Chapter of the National Academy of Television Arts and Sciences in the Informational/Instructional Program/Special category. This 15-minute feature explains what marine debris is, how it affects our ocean, and what people can do to prevent it.</p>
66	<p>The NOAA Office of Ocean Exploration and Research offers on-site educator professional development opportunities (PDOs) at 15 Education Alliance Partner sites (aquariums and informal science centers) nationwide. Educators learn to use the NOAA Ship Okeanos Explorer Education Materials Collection, titled Why Do We Explore? and How Do We Explore? An external evaluation of the program from 2013-2015 using data from nine instruments showed that the PDOs were successful at accomplishing goals, objectives and performance measures. All (100.0%) of the short-term outcomes (knowledge, attitudes, aspirations, and skills) were accomplished; nine (90.0%) of 10 intermediate (practice) outcomes were accomplished. One outcome was not accomplished because of timing between subsequent PDOs.</p>
67	<p>University of Southern California Sea Grant launched the Urban Tides Community Science Initiative, a citizen science program that links observations of community members across Southern California with scientists and city leaders working on climate change. The goal is for people to photograph tidal lines, coastal flooding, and erosion, and upload images into the Urban Tides database. Evaluations of Urban Tides beach walk participants show that community members gain new knowledge of sea level rise and climate change. USC Sea Grant has built partnerships with non-formal education centers, schools, nonprofit organizations, and local municipalities in Southern California to engage communities in this effort.</p>
68	<p>WeatherFest has become a very popular event where the public meets scientists from their local National Weather Service offices and local weather professionals in their community. This past year the over 6,000 people participated in 4 WeatherFest events in New Orleans, LA, Fayetteville, AR, Detroit, MI, and San Diego, CA. These events provided visitors the opportunities to engage scientists, play engaging games/activities, via the internet and to increase their curiosity to explore elements within Earth System Science. They also gained valuable knowledge in the weather hazards within their</p>

	community and safety information to become adequately prepared.
69	The Diversity and Professional Advancement Working Group (DPAWG) developed and disseminated a NOAA-wide survey which gathered perspectives about diversity, inclusion, and opportunities for professional advancement. The results of this survey led to briefings with NOAA leadership and initiatives geared toward creating a more diverse and inclusive NOAA workforce. Due to these efforts, DPAWG received the NOAA Administrator Award for challenging the status quo and driving agency priorities on diversity and inclusion.
70	The Educational Partnership Program with Minority Serving Institutions (EPP/MSI) had a record of four alumni selected as Sea Grant Knauss Marine Policy Fellowship finalists. The selection of these students recognizes their outstanding academic and research achievements. These students will apply their scientific expertise to inform policy decisions affecting the Nation's natural resources. The Sea Grant Knauss Marine Policy Fellowship is a unique opportunity for highly qualified graduate students who are interested in policy related to marine, coastal and Great Lakes resources to spend a year in Washington, DC, working at an executive agency or on Capitol Hill. The four selected students are Jhoset Burgos-Rodriguez who is a Climate Change and Natural Resources fellow with the Department of Interior and Office of Insular Affairs, Symone Johnson who is an Education Policy Fellow with the NOAA Office of Education, Efeturi Oghenekaro who is an International Affairs fellow with the NOAA REsearch Office of International Affairs, and Larry Redd who is a Fishery Management Specialist with the NOAA Fisheries Highly Migratory Species Division.
71	The National Weather Service created and filled over 60 Pathways Internship positions. The Pathways Internship program aims to recruit undergraduate or graduate students who are enrolled at least half-time. Students are placed at Weather Forecast Offices where they receive hands-on training and mentorship from NOAA scientists. Students who participate in Pathways Internships are eligible to be converted to a permanent position at NOAA at the end of the internship. NWS is currently the only NOAA office offering Pathways Internships and has filled 25 additional opportunities for 2017.
72	March, 2016 Employee of the month: "Jennifer Saari, a Weather Service meteorologist intern at Weather Forecast Office Huntsville, Alabama, knows that to build a Weather-Ready Nation, underserved communities need to be prepared to respond to extreme weather, water, and climate events. Over the last four years, Jennifer has led several efforts in the Huntsville area to help the deaf and hard-of-hearing community stay safe from the dangers of lightning. Last year, she brought this initiative to the national level, conducting a special diversity webinar for the entire agency, giving presentations to each NWS region's Warning Coordination Meteorologist monthly meetings, and coordinating a social media campaign across the agency during national Deaf Awareness Week. Also recognizing that the long-standing "When Thunder Roars, Go Indoors" mantra doesn't work for the deaf, she set out to develop a new slogan specifically targeted to this underserved population. Through the National Deaf and Hard of Hearing Outreach Team Jennifer leads, the "See a Flash, Dash Inside!" was coordinated. Her efforts are playing a key role in the development of a lightning safety Public Service Announcement that will be unveiled later this year."
73	Representatives from NOAA student opportunity programs such as Educational Partnership Program, Ernest F. Hollings Scholarship program, Knauss Fellowship, the Office of Coastal Management, and the Dr. Nancy Foster Scholarship collaborated to develop a common rack card that houses key information for NOAA undergraduate and graduate opportunities. Goal 4 in the NOAA Education Strategic Plan focuses on creating a highly skilled and diverse workforce by providing career focused opportunities for K12 and postsecondary students. These program representatives identified the need for more collaboration terms of recruitment efforts and developing a central location where students can access all available student opportunities within NOAA. The NOAA rack card will give students a brief synopsis of several NOAA student opportunities and provide a website link to access application information.
74	NOAA's Office of Education made progress towards Goal 4 by expanding the pool of students eligible to participate in the NSF Graduate Research

	<p>Internship (GRIP) program at NOAA. Before 2016, students had to be in the Graduate Research Fellowship Program (2000 students per year) to do an internship. This expansion allows any student supported by an National Science Foundation (NSF) Geosciences grant to apply for GRIP and intern at NOAA. NSF pays the full stipend plus \$5k for travel or research expenses. The NSF Directorate for Geosciences support programs in atmospheric, earth, ocean and polar sciences.</p>
75	<p>The Multicultural Education for Resources Issues Threatening Oceans (MERITO) Foundation used B-WET grant funds to empower students to address climate change and ocean acidification. The Energy Efficiency to Mitigate Climate Change and Ocean Acidification program is a project-based science education program that provides energy, climate and ocean literacy services and products to teachers and their students. They worked with predominantly Hispanic and Latino students to provide them with the tools to research, design and innovate Energy Efficiency or other sustainability models their schools can adopt, or develop Ocean Acidification (OA) awareness campaigns that inform their communities. A secondary goal is to inspire STEM underrepresented students to pursue careers related to the environment. This initiative is a response to extend the tenured MERITO Academy program that focuses on building stewardship for coastal and marine environments using National Marine Sanctuaries as the study area, builds interest among 4-7th grade students in STEM careers, and increases awareness of how our actions affect the health of our watersheds, coastal and offshore environments. EECCOA expands the MERITO Academy by facilitating students' action and innovation through a project-based challenge for students in 8-12th grades that requires the application of scientific concepts into engineering practices to reduce the carbon footprint of their school campus in a measurable way.</p>
76	<p>The Office of Education made progress towards Goal 5 by using an external evaluator to assess Hollings Scholarship Program and the Educational Partnership Program (EPP). Before conducting the evaluation, there was limited data available regarding student outcomes for each program. The evaluation will gather data to better understand student trajectories as well as understand the strengths and challenges of each program. Through an improved understanding of student impact from these student programs, the Office of Education can refine programming and target efforts for future investment.</p>
77	<p>National Ocean Service Education was an integral part of the the second annual Inter-Tribal Youth Climate Leadership Congress at the U.S. Fish and Wildlife Service Conservation Training Center in Shepherdstown, West Virginia. Eighty-seven Native American, Alaska Native, and Native Hawaiian students aged 15-18 participated in the week-long event to learn about climate change issues in indigenous communities, federal efforts, and how they can help their communities become more resilient in the face of climate change.</p>
78	<p>The Sapelo National Estuarine Research Reserve (SINERR) has partnered with the North Carolina and South Carolina National Estuarine Research reserves to expand the EPA Seeds to Shoreline student program. This program focuses on hands-on educational approach to saltmarsh stewardship and the understanding of the scientific method. Middle school and high school students were permitted to harvest Spartina seeds in the salt marsh, germinate them in their schools, grow them out in greenhouses and plant the Spartina in designated areas.. A total of 226 students were engaged through this program and 69 plants were planted back into the estuary. Success was highly variable during this pilot year with several schools experiencing complete failure due to seeds freezing storage, desiccation of seedlings, or accidental disposal of seeds in school storage. All teachers who participated in this program rated it as very helpful in introducing science principles into the class room and allowing students to stratify experimental treatments in a real world scenario.</p>
79	<p>In FY16, the National Environmental Satellite, Data, and Information Service supported the NASA Space Place exhibit by providing supporting materials to be displayed in the Space Place display. This display is curated by the National Aeronautics and Space Administration (NASA) and housed in 275 museums across this country. Through this collaborative effort, NESDIS materials including information on the GOES-R satellite and NOAA SciJinks, an</p>

	interactive web portal for students, is accessible to the 30 million visitors to these museums this year.
81	The National Environmental Satellite, Data, and Information Service (NESDIS) made progress towards Goal 1 by collaborating with American Meteorological Society (AMS) to develop a suite of eight short courses for science professionals and students on NESDIS satellites, data, and analysis used to bring about awareness and discussion regarding the latest satellite technology. These courses were delivered during the 2016 AMS conference and later converted to an online format allowing access to other interested stakeholders. To date, 50 individuals have participated in at least one of these courses.
82	The Director of Office of National Marine Sanctuaries provided \$28,500 to support projects which support diversity and inclusion education. Of six projects that were funded, five of them were for formal or informal education to help bring sanctuary stories and experiences to underrepresented audiences around the country. Projects included archaeological documentation of Tuskegee Airmen aircraft in Lake Michigan, trained climate outreach specialists from underrepresented college students, and field trips for underserved schools.
83	The Sapelo National Estuarine Research Reserve (SINERR) played an integral role in training coastal environmental educators during two, on-the-reserve sessions. The first session was for 11 naturalists on Little St. Simon's Island, GA. Little St. Simon's Island is an 11,000-acre barrier island located just south of the Reserve. The island is managed under a conservation easement and is open to the public by way of a lodge located on the south end of the island and staffed by 11 naturalists for education. During the training session, the naturalists were given instruction on Georgia's coastal ecosystems, current research as well as the complex environmental issues affecting the coast. These issues included sea level rise, storms, sediment flow, commercial fishing operations, coastal resiliency and long lived persistent toxins. These staff were also given instruction on the Reserves SWMP data and other NOAA assets. The second group was 10 new Burton 4-H instructors. Burton 4-H is located on Tybee Island and is operated by the University of Georgia. Burton 4-H educates around 8,000 students annually. Burton 4-H instructors visited the reserve and were trained at the request of their manager. These instructors were given similar inductions as the Little St. Simon's Island naturalists. These two programs illustrate the Sapelo Island National Research Reserves leading role among educators as a source of critical information and instruction about Georgia's coastal ecosystems.
84	The Office of National Marine Sanctuaries has a strong system that collects performance measure and evaluation data across all education and outreach programs in the Sanctuary system. In FY16, we made improvements to our process by implementing an online database system to collect program performance data. In addition, we developed outcomes that are consistent across the Sanctuary education system, so we can assess system wide impacts. These program outcomes are focused on measuring changes in knowledge of ocean and climate literacy.
85	The National Weather Service (NWS) made significant progress towards supporting NOAA Goal 3 (Safety and Preparedness) in FY16. The Weather-Ready Nation (WRN) initiative has over 3600 organizations participating as WRN Ambassadors. In April 2016, the NWS Office of Communications launched an WRN Ambassadors Educators newsletter for over 360 education organizations. The newsletter is published monthly and contains articles on NOAA and NWS education activities and programs of interest to educators. The newsletter also includes information from our education partners such as the American Meteorological Society, the FEMA Affirmers Program for Youth and NASA. Topics in the newsletter included a Owlie Skywarn's Weather Art Contest, the 2016 Hurricane Webinar, the 2016 NWS Owlie Skywarn Back to School Campaign and the upcoming launch of GOES-R and Teacher Workshop. The newsletter provides students with information on career workshops, scholarships and opportunities to meet NOAA and NWS scientists. The NOAA/NWS Partnership with the American Meteorological Society provides Educators with opportunities for professional development training and Teacher Workshops. Partnerships with the Smithsonian Science Education Center provide teachers opportunities to enroll in courses in weather and climate courses. These partnerships help NOAA and NWS extend their reach into the education community.

86	<p>The National Weather Service (NWS) made significant progress towards supporting NOAA Education Goal 4 in FY16. The NWS employs over 4,000 people serving in a variety of careers, including scientific, technical, and administrative positions in offices across the country. In June 2016, the NWS Office of Communications, along with the NWS Office of Equal Opportunity and Diversity, created a new NWS career resource. The Faces of the NWS (www.weather.gov/careers) contains one location with career resources, student and employment opportunities, as well as personnel profiles of a diverse group of NWS employees in multiple career fields. These resources, including the profiles on the Faces of the NWS website, aid in meeting NOAA and the NWS's strategic goals of creating a diverse future workforce and promote careers in STEM. The Faces of the NWS website shows that education is key to developing a future workforce able to lead in building a Weather-Ready Nation. This is a one stop resource that can be used for recruitment through career fairs, outreach engagements, and mentoring. NWS Headquarters and field offices have used the site to inspire students to consider careers that support NWS mission and provide students with examples of the variety of paths they can take. The site has been used at various careers fairs, including the NOAA Hollings Scholar Career Fair in May, outreach events, mentoring opportunities, and many school visits. Between the launch in June and October 2016, the site had approximately 40000 site visits.</p>
87	<p>Science Museum of Virginia: Preparathon- See Goal 3 Feature Story</p>
88	<p>Most Puerto Rican teachers lack formal or informal training in marine science. To increase teacher's knowledge about ocean issues, Puerto Rico Sea Grant developed a marine educational training model covering nice specific topics such as marine birds, marine vegetation, whales, sea turtles, corals, and plankton. A total of 137 teachers attended the training workshops and returned a workshop evaluation form. 95% of participants stated they had learned new information about marine topics and 93% were confident they could use the materials in class. Pre- and post-test assessment indicated significant improvement in student content knowledge.</p>
89	<p>The Texas Gulf coast is one of the most biologically productive regions in the nation. Adequate freshwater inflows to Texas' estuaries are critical to maintain historic functionality, productivity and health of the diverse estuarine habitats and species that support thriving ecosystems and fisheries. However, many Texans are unaware of the threats and consequences of their day-to-day actions and population growth on the sustainability of natural biological systems. To combat this knowledge gap, Texas Sea Grant extension staff developed programming to address coastal education needs in Matagorda County and along the Colorado River watershed. In 2015 approximately 140 youth and adults attended programs at Austin Public Library branches to learn about Texas' diverse coastal ecosystems, watershed stewardship, and the connectivity between inland activities and impacts to coastal environments.</p>
90	<p>On average, more people die each year (about 100 per year) because of rip currents than from shark attacks, tornadoes, flooding or lightning. According to the United States Lifesaving Association, 80 percent of surf beach rescues are attributed to rip currents. The threat they pose to beachgoers and the disruption they can cause to shore tourism is easily preventable through awareness and education. Since 2011, the education staff at New Jersey Sea Grant (NJSG) has partnered with their extension counterparts to extend NJSG's rip current research and outreach activities to school-aged children through various means. In 2015, 10,000 copies of NJSG's "Rip Current Kids" booklet were distributed to New Jersey's K-12 schools. Schools were made aware of the availability of the booklet through social media and email notifications. Bulk orders were sent to teachers upon request. Many more teachers reprinted the booklet themselves from NJSGC's website.</p>
91	<p>The NOAA Enrichment in Marine Sciences and Oceanography (NEMO)-See 4 Feature Story.</p>